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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,321	10/18/2001	Yanling Zhou	211598US2	1536
22850	7590	11/16/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PAIK, SANG YEOP	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/869,321

Applicant(s)

ZHOU, YANLING

Examiner

Sang Y Paik

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,6,7,11,14,18-22,24 and 30-37 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,6,7,11,14,18-22,24 and 30-37 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/23/04, 4/13/04, 3/10/04, 3/14/04  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 31-37 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9-12 and 18 of copending Application No. 10/842,482. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application include the recited elements of this application including the ceramic heater with the disc-form ceramic substrate, the resistance heating element, the insulating covering comprising resin. The copending claims having a more detailed embodiment "anticipates" the broader invention of this application, and while the element wafer has not been recite in the copending application, using the ceramic heater for heating a wafer is well known in the art of its use in the semiconductor industry.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 6, 7, 8, 11, 14, 18-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (US 6,072,162) in view of Yoshida et al (US 6,080,970), and Allen (US 4,057,707) or Morita et al (US 5,111,983).

Ito et al show the ceramic heater claimed including an AlN ceramic substrate, a resistant heating element comprising one or more circuits on a surface of the ceramic substrate, the ceramic heater having through holes for accommodating lifting pins to lift a wafer, and a thermocouple. However, Ito et al does not show the ceramic substrate is a disc-formed and the insulating covering made of oxide glass provided over the heating element.

Yoshida et al show that it is known in the art to make a ceramic heater in a disc-shape for heating semiconductor wafers are also made in the disc shape. In view of Yoshida et al, it would have been obvious to one of ordinary skill in the art to adapt Ito et al with a disc shape ceramic heater to accommodate the disc shape semiconductor wafers to more effectively heat such wafers.

Allen shows a ceramic heater with a ceramic substrate with a heating element provided thereon. Allen further shows that the heating element is insulated with an oxide glassy material to insulate the heating element so as to prevent cracking or peeling of the heating element and to prolong the life of the ceramic heater. Morita et al also shows a ceramic heater with a ceramic

Art Unit: 3742

substrate with a heating element thereon and an insulating oxide vitreous or glassy material. In view of Allen or Morita et al, it would have been obvious to one of ordinary skill in the art to adapt Ito et al with the insulating oxide glass material to insulate and protect the heating element from cracking or peeling.

With respect to claims 7 and 11, it would have been obvious to one of ordinary skill in the art to provide the insulating layer with a thickness, including the claimed range, that would be sufficiently adequate to protect the heating element without incurring extraneous material cost and without lessening the heating capacity of the ceramic heater.

With respect to claim 30, Yoshida et al teach that the ceramic substrate is made of laminated ceramic sheets. In view of Yoshida et al, it would have been obvious to one of ordinary skill in the art to provide Ito et al with an insulating layer on the ceramic substrate to further provide a sufficient mechanical strength to hold up a wafer that would be supported on the ceramic substrate.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al in view of Yoshida et al, and Allen or Morita et al as applied to claims 1, 2, 6, 7, 8, 11, 14, 18-22 and 24 above, and further in view of Martin et al (US 3,978,315).

Ito et al in view of Yoshida et al, and Allen or Morita et al, show the ceramic heater claimed except providing an insulating layer.

Martin et al show a ceramic heater having a ceramic substrate with an insulating layer provided on the ceramic substrate with the heating element positioned on the insulating layer. Martin et al teach that providing the insulating layer enhances the chemical and physical interactions between the ceramic substrate and the heating element. In view of Martin et al, it

Art Unit: 3742

would have been obvious to one of ordinary skill in the art to adapt Ito et al, as modified by Yoshida et al, and Allen or Morita et al, with the claimed insulating layer to further increase the mechanical strength of the ceramic heater as well as to protect the ceramic heater from undesired chemical interactions between the heating element and the ceramic substrate.

6. Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al in view of Yoshida et al, and Allen or Morita et al as applied to claims 1, 2, 6, 7, 8, 11, 14, 18-22 and 24 above, and further in view of Mio et al (US 4,536,645).

Ito et al in view of Yoshida et al, and Allen or Morita et al, show the ceramic heater claimed except the insulating covering made of resin.

Mio et al teach that it is known in the art to use a silicone resin material as an alternative insulating material in place of an oxide material. In view of Mio et al, it would have been obvious to one of ordinary skill in the art to adapt Ito et al, as modified by Yoshida et al, and Allen or Morita et al, with the resin material as the alternative insulating material to protect the heating element. With respect to claim 36, it would have been obvious to use polyimide as the insulating material since polyimide is well known in the art as one of the resin material type.

7. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al in view of Yoshida et al, Allen or Morita et al, and Mio et al, as applied to claims 31-36 above, and further in view of Martin et al (US 3,978,315).

Ito et al in view of Yoshida et al, Allen or Morita et al, and Mio et al, show the ceramic heater claimed except providing an insulating layer.

Martin et al show a ceramic heater having a ceramic substrate with an insulating layer provided on the ceramic substrate with the heating element positioned on the insulating layer.

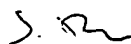
Art Unit: 3742

Martin et al teach that providing the insulating layer enhances the chemical and physical interactions between the ceramic substrate and the heating element. In view of Martin et al, it would have been obvious to one of ordinary skill in the art to adapt Ito et al, as modified by Yoshida et al, Allen or Morita et al, and Mio et al, with the claimed insulating layer to further increase the mechanical strength of the ceramic heater as well as to protect the ceramic heater from undesired chemical interactions between the heating element and the ceramic substrate.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp